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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,815	06/27/2003	Larry J. Markoski	09800240-0048	8007

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EVAN LAW GROUP LLC
600 WSET JACKSON BLVD., SUITE 625
CHICAGO, IL 60661

EXAMINER	
LEE, CYNTHIA K	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 08/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/608,815	MARKOSKI ET AL.	
	Examiner	Art Unit	
	Cynthia Lee	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-44* is/are pending in the application.

4a) Of the above claim(s) *26 and 27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-25 and 28-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to the amendment filed on 7/11/2006. Claims 1 and 20 have been canceled. Claims 21-44 are pending. Claims 26 and 27 are withdrawn from further consideration as being drawn to a non-elected invention. Claims 25 have been amended.

The 35 USC 112, 2nd paragraph has been withdrawn.

Applicant's arguments have been considered, but are not persuasive. Thus, claims 21-25 and 28-44 are finally rejected for reasons of record and for reasons necessitated by applicant's amendment.

Claims Analysis

It is noted that the limitation "such that when a first liquid is in contact with the anode, a second liquid is contacted with the cathode, and the first and the second liquids flow through the channel, laminar flow is established in the first and the second liquids" in claim 41 was considered but not given patentable weight because it has been held by the courts that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (BdPatApp & Inter 1987). See MPEP 2115.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 21-25 and 28-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohlsen (US 2004/0058217) in view of Brokman (US 5185218), and DuPont Zonyl® FS-62 technical data sheet (3/2001) (hereinafter referred to as "Zonyl® FS-62").

Ohlsen discloses fuel cell system having internal multistream laminar flow. Ohlsen discloses a liquid fuel/electrolyte mixture and a liquid oxidant/electrolyte mixture. The liquid fuel/electrolyte mixture and a liquid oxidant/electrolyte mixture comprises phosphoric acid, sulfuric acid, trifluoromethane sulfonic acid, difluoromethan diphosphoric acid, difluoromethane disulfonic acid, trifluoroacetic acid, or a combination thereof (Ohlsen's claim 19). The liquid oxidant/electrolyte mixture includes oxygen, hydrogen peroxide, or a combination thereof [0022].

Ohlsen does not disclose a fluorinated hydrocarbon. However, Brokman teaches that major advantages can be obtained by supplying oxygen to an air cathode via an organic fluid having a high oxygen concentration rather than via a gaseous medium. Brokman teaches that perfluorocarbon compounds known to be oxygen carriers and releasing agents, thus serving as temporary substitutes for blood in severe cases of hemmorage or ischemia. Thus, Brokman teaches of providing a hydrogen-oxygen fuel cell comprising comprising an air cathode in combination with an oxygen-rich electrolyte-immiscible organic fluid for supplying oxygen thereto. Preferably, perfluorodecalin is used. (1:55-67, 2:30-35, 45-50, 3:15-20). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add

perfluorodecalin to Ohlsen's fuel cell for the benefit of increasing the oxygen content of Ohlsen's liquid oxidant/electrolyte mixture. Ohlsen clearly teaches that perfluorodecalin is a result effective variable and it has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05.

Ohlsen does not disclose a surfactant. Further, Zonyl® FS-62 teaches that perfluorohexylethylsulfonic acid and ammonium perfluorohexylethylsulfonate possess solubility in polar organic solvents, water and strong acids. It is a powerful wetting agent, which dramatically reduces surface tension, even at very low concentrations in aqueous media. Further, this material is stable in harsh chemical environments, produces foam in aqueous and acidic systems, and show appreciable synergies in mixed surfactant systems. Due to the sulfonate end group, perfluorohexylethylsulfonic acid and ammonium perfluorohexylethylsulfonate is more effective in soft water applications. The relatively low pKa of the sulfonic acid allows it to be used in acidic media as well as in alkaline formulations. It is also highly recommended for the wetting or dispersion of fluorochemical-based powders and/or fluids. It is functional over a wide pH range. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use perfluorohexylethylsulfonic acid and ammonium perfluorohexylethylsulfonate for the benefit of reducing surface tension and using the surfactant in harsh, acidic environments. The amount of surfactant in the emulsion aids in the solubility of perfluorodecalin and it has been held by the courts that discovering

an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05.

The combination of Ohlsen (US 2004/0058217) in view of Brokman (US 5185218), and DuPont Zonyl® FS-62 would necessarily possess a pH of at most 1 or at least 10. Further, the examiner notes that the disclosure provides no evidence of criticality with regard to the pH. A limitation merely with respect to pH will not support patentability unless such limitation is "critical".

Ohlsen's fuel cell is configured in which the anode and the cathode are separated by a channel contiguous with at least a portion of each electrode; such that when a first liquid is in contact with the anode, a second liquid is contacted with the cathode, and the first and the second liquids flow through the channel, laminar flow is established in the first and the second liquids. (fig. 2) Further, the third laminar flow stream is positioned between the first liquid fuel/electrolyte mixture and a liquid oxidant/electrolyte and separate the anode and the cathode.

The combination of Ohlsen (US 2004/0058217) in view of Brokman (US 5185218), and DuPont Zonyl® FS-62 is proper because the applicant's field of endeavor not only appreciable towards fuel cells, but towards the emulsion of oxygen.

Response to Arguments

Applicant's arguments filed 7/11/2006 have been fully considered but they are not persuasive.

Applicant asserts that Brokman teaches away from an emulsion of a fluorinated solvent and an electrolyte because in Brokman's invention, a metallic mat structure is present that prevents bulk contact of the fluid from the electrolyte.

The Examiner disagrees. Firstly, applicants are not claiming an emulsion comprising a fluorinated solvent and an electrolyte. The independent claim reads a composition in contact with at least one of the electrodes comprising an emulsion comprising a fluorinated solvent and an electrolyte. Second, the applicants have not specified a degree of emulsion to distinguish from prior art. The examiner notes that Brokman's electrolyte in contact with the anode and the organic fluid contacting the cathode collectively read on a composition in contact with at least one of the anode and the cathode comprising an emulsion comprising a fluorinated solvent and an electrolyte, despite applicant's assertion that it does not.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ckl

Cynthia Lee

Patent Examiner

JONATHAN CREPEAU
PRIMARY EXAMINER